

BROADBAND ACCESS IN IDAHO PUBLIC LIBRARIES

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IDAHO PUBLIC LIBRARIES, SFY 2014

Idaho has 103 public library jurisdictions which collectively operate 144 buildings and 11 bookmobiles. Fifty-four of the jurisdictions are independent taxing districts with elected boards; 49 are city libraries with boards appointed by the mayor and city council.

FY2014 State averages:

51.0	hours opened / week including evenings & weekends
7.4	FTE (median is 2.3 FTE)
89.0	Percentage of operating revenue that comes from local property taxes

FY2014 public library statistics:

8,730,670	visits, not counting virtual visits to library websites
1,792	public Internet terminals
1,873,946	Internet uses, not counting use of library wifi with patron-owned devices
70%	are the only source of free public Internet access in their communities

FY2014 services related to broadband access and use offered by public library:

100.0%	Online databases: car repair to homework help
100.0%	Online education opportunities for all ages, formal and informal
100.0%	Help with completing online gov't forms
98.1%	Digital literacy training & technology help
96.2%	Online business & workforce development resources
96.0%	Online job & employment resources

2014 IDAHO PUBLIC LIBRARY BROADBAND ACCESS SURVEY

In 2014 the Idaho Commission for Libraries, with support from the Idaho Library Association, conducted a survey to collect data related to broadband access in public libraries. Surveys were completed for 122 (out of 144) library locations. Not all respondents answered all questions. Unless otherwise noted, the following data reflects responses from the 79 library locations that reported download speed from 3 speed tests, number of devices, and annual cost before E-rate discounts.

FCC 2015 definition of broadband: speeds of at least 25 Mbps down and 3 Mbps up.

FCC target speed for public libraries: 100 Mbps for populations of less than 50,000, and 1 Gbps for populations of 50,000 or more.

Download speed (average of 3 speed tests)

Our survey asked libraries to run 3 speed tests, once each when the library was closed, use was normal, and use was high. We calculated the average of the 3 download speeds for each library; results range from a low of .89 Mbps to a high of 93.87 Mbps. Some library directors realized that, based on the speed tests, they are not getting the bandwidth for which they contract.

Average	17.13	Mbps
Lowest	.89	Mbps
Highest	93.87	Mbps
Median	9.51	Mbps

Libraries	Mbps – Speed	Percentage
10	0.89 – 2.00	13%
16	2.01 – 5.99	20%
15	6.00 – 9.99	19%
15	10.00 – 19.99	19%
9	20.00 – 39.99	11%
14	40.00 – 70.60	18%

Bandwidth per library-owned device (computed using average of reported download speeds/reported number of library-owned devices)

Excerpts from survey report:

“In 2011 the Commission determined that for the 55 Broadband Technology Opportunities Program (BTOP) libraries, 0.60Mbps was the minimum level of bandwidth per device. With the amount of video on the Internet today, that is no longer ideal.” For example, librarians in many public libraries use YouTube as the go-to resource for do-it-yourself projects and how-to help.

Of 79 reporting library locations, 50 (63%) had less than 0.60 Mbps per device and need more bandwidth even without taking into account the bandwidth required to support wireless access from patron-owned devices.

“In a 2012 TechNibble article discussing Internet bandwidth requirements (<http://www.technibble.com/estimate-bandwidth-needs-customers/>), author Derrick Wlordarz suggested that 0.80 to 1.0 Mbps of bandwidth per user might be a conservative estimate of bandwidth that would be adequate. Given the rapid increases in video content available today, 1.0 Mbps or more per user may be conservative.” Of the 79 reporting libraries, only 21 (27%) exceed 1.0 Mbps per device.

Average	0.98	Mbps
Lowest	0.06	Mbps
Highest	13.09	Mbps
Median	0.47	Mbps

Libraries	Mbps	Percentage
50	< 0.60	63%
8	0.60 - 1.00	10%
21	> 1.00	27%

Type of Connection

Excerpts from survey report:

“Internet bandwidth to Idaho libraries is delivered by wireless, cable, DSL, and fiber connections, with wireless being the most common. There are some bonded T-1 connections over copper and some DS-3 connections over fiber. There are direct fiber connections to a number of Idaho libraries in both urban and rural areas of the state. DSL, cable, and wireless connections are often shared services with asymmetrical service (download and upload data rates are different). The T-1, DS-3, and most of the fiber connections are dedicated services with symmetrical service (download and upload data rates are the same). These dedicated connections are the preferred service technically, but are more expensive than the shared connections. The shared connections exhibit varying performance depending on how many other locations are using the service at a given time.”

Connectivity	Libraries	Percentage
Wireless	25	32%
Fiber	21	27%
DSL	16	20%
Cable	14	18%
Ethernet	2	2%
Satellite	1	1%

Cost before E-rate discounts

Excerpts from survey report:

“The cost for Internet connections for Idaho public libraries varies widely. A few libraries receive their Internet service at no charge. Some of these receive no-charge service in exchange for allowing their Internet service provider (ISP) to locate equipment on library or city property. A couple of rural ISPs do not charge the libraries in their service area for Internet access.”

Annual costs before E-rate range from free to \$44,000 before E-rate discounts. As for Idaho’s schools, our public library average discount is about 76%. Libraries requested \$582,820 in discounts for the 2014 E-rate year, and \$592,947 for 2015.

Cost per Mbps/month also varies widely. “The higher cost connections are dedicated connections over leased circuits (T-1s or DS-3) or dedicated fiber-based services. The inexpensive connections are primarily shared, asymmetrical such as DSL and consumer cable services.”

Annual cost before E-rate

Average	\$6,787.30
Lowest	\$0.00
Highest	\$44,000.00
Median	\$2,400.00

Cost per Mbps/month

Average	\$80.89
Lowest	\$0.00
Highest	\$1,210.07
Median	\$19.66

Wireless access (number of responses to questions about wireless varied)

Excerpts from survey report:

97% of responding locations (117 of 121) provide wireless Internet access for library-owned devices and/or for patron-owned Internet accessible devices. “A great majority of libraries that offer wireless access to the Internet keep the wireless networks available 24/7 to areas outside the library proper, such as patios, attached buildings, and parking lots. In many rural locations, the library is the only Internet hot spot in the community. And in others, it is the only hot spot with no restrictions such as having to purchase coffee, a meal, a drink or something else to use the hot spot.” In a 2013 national survey, 70% of Idaho libraries reported being the only source of free Internet access in their communities.

“The increase in patron-owned devices such as laptop computers, smartphones, and tablets results in an increasing demand on the library wireless networks.” 48% (56 of 116) would need additional equipment and/or connectivity to offer more wireless capacity for patrons. However, 70% (83 of 119) do not track wireless use with patron-owned devices.

“Almost 20% (21 of 114) of the locations responding to this survey report some issues with wireless Internet access that need addressing, including: wireless network is slow, network doesn’t accommodate enough simultaneous users, and wireless signal is weak or not available in some areas of the library.” While separating public access wireless networks from other library networks is a good practice, 42% (49 of 116) do not do so.

Trends

Excerpts from survey report:

“The demand for Internet connectivity has increased for administrative applications as well as from patron demand for information, applications, and other services available on the Internet. The rapid increase in portable, connected devices such as smart phones and tablet computers has driven a demand for not only Internet access for wired Internet-capable computers and devices owned by the libraries, but also for Internet access for devices owned by patrons. And as expected, the increased bandwidth available at the libraries has driven more use by library patrons.”

“This trend for higher Internet connection speeds is expected to continue as library patrons increasingly connect to the Internet through library-owned devices as well as an assortment of patron-owned devices including laptop computers, phones, game consoles, tablets, e-readers, Google Glasses, and Apple Watches. More devices capable of connecting to the Internet will be adopted by users. More applications and more websites drive the demand for more Internet bandwidth with video applications leading the way as they require large amounts of bandwidth.”

“Digital learning in Idaho is exploding as reported in recent news media articles and programs. Librarians notice young and adult learners needing more time to use computers and Internet resources to do homework and to complete on-line education from GED to advanced degrees.

Citizens who cannot afford computers and/or Internet access in their homes because of economic hardship come to Idaho's libraries for these resources that help them improve their lives."

"The result is that many Idaho libraries find their networks are busy and already need more Internet bandwidth or they will soon need additional bandwidth."

Conclusions: public library needs related to broadband connectivity

- Better understanding of security for internal library networks, including information about separating public access from the network staff uses for library administration functions.
- Implementation of technology planning and management, including equipment replacement plans, policies regarding use of technology, network utilization, and needs assessment for public access computing.
- A process for measuring public access wireless usage (number of logins, bandwidth consumed, number of unique patrons, etc.).
- Better understanding of their contracts and invoices for connectivity and Internet access, and of the terminology and infrastructure so they can participate more fully in community conversations about infrastructure and in communication with sales and IT support.
- More adequate, affordable, reliable, and scalable Internet connectivity.

Clearly, Idaho public libraries face challenges in obtaining adequate, affordable, reliable, and scalable bandwidth. In some cases, vendors cannot offer libraries any more bandwidth; in other cases, libraries cannot afford more. Some libraries have difficulty identifying the vendors that might serve them, especially when an RFP for E-rate purposes results in only 1 or even no bidders. Another barrier to increasing bandwidth is lack of knowledge and experience to negotiate for more affordable broadband. Only 31% (32 of 103) of survey respondents monitor network utilization data. Most lack staff with expertise to evaluate such data for planning purposes or to efficiently configure and manage their network(s), security, and filtering.

COMMISSION MESSAGE TO 2015 LEGISLATIVE INTERIM BROADBAND ACCESS STUDY COMMITTEE:

- Broadband in public libraries is a critical resource for education, economic development and sustainability in most of our communities.
- Public libraries need more broadband to meet current and projected demand – more adequate, scalable, reliable, and affordable broadband.
- Idaho's public libraries are significant consumers of broadband for Internet connectivity and should be included in statewide planning for broadband.